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Darryl Mexic Sughrue Mion Zinn MacPeak & Seas PLLC 2100 Pennsylvania Avenue NW Washington, DC 20037-3213			WERNER, BRIAN P	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/654,939	JO ET AL.
	Examiner	Art Unit
	Brian P. Werner	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 04 September 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3 and 8-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 1-3 is/are allowed.

6) Claim(s) 8-11 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . 6) Other: _____ .

DETAILED ACTION

Priority Chain (Reiterated from First Action)

1. The preset application (i.e., 09/654,939) is a divisional reissue application filed on December 22, 2000, claiming priority to reissue application number 09/638,796 filed on August 11, 2000, which is a reissue application of number 08/495,591 filed on November 3, 1995, patent number 5,793,897, which is a 371 of international application number PCT/KR94/00177 filed on December 16, 1994, which claims priority to Korean applications 93-28074 and 94-34497, filed on December 16, 1993 and December 15, 1994 respectively.

Response to Amendment

2. This Office Action is responsive to the amendment received on September 4, 2003. In response, the previous specification objection (i.e., as lacking a reference to the parent application) is withdrawn. In response to the filing of a terminal disclaimer, the provision double patenting rejection is withdrawn. Claims 1-3 and 8-11 remain pending.

Response to Arguments

3. Each of the remarks and/or arguments filed with the aforementioned amendment (referred to herein as the "instant response") have been considered:

Priority

Summary of Applicant's Remarks: The first sentence of the specification has been amended to refer to the parent application 09/638,796.

Examiner's Response: Agreed. The previous objection is withdrawn.

Double Patenting

Summary of Applicant's Remarks: The terminal disclaimer obviates the double patent rejection.

Examiner's Response: Agreed. The previous provisional double patenting rejection is withdrawn.

Recapture of Inventions: 35 U.S.C. 251 Rejection

The Surrendered Subject Matter

Summary of Applicant's Remarks: "In framing his rejection, the Examiner points to the 'zigzag scanning', the 'different patterns for regular and escape regions,' and the 'selecting according to intra/inter mode of the currently processed block limitations' as a basis for concluding [the surrendered subject matter]" at response page 5.

Examiner's Response: This is not a complete summary of the subject matter subject to the recapture rule. In the previous Office Action, the examiner concluded that the following subject matter was surrendered (i.e., in particular, the subject matter underlined below) during the original prosecution of patent 5,793,897:

- A. zigzag scanning
- B. the selection of a variable-length coding table in accordance with the zigzag scanning position and quantization step size
- C. setting a plurality of variable length coding tables having different patterns of a regular region and an escape region
- D. a selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region
- E. selecting a variable-length coding tables according to inter/intra mode information of a currently processed block.

The subject matter summarized above shall be referred to as surrendered subject matter A through E herein.

Precedential Decision *Ex parte Eggert*

Summary of Applicant's Remarks: At response pages 6-7, the precedential decision *Ex parte Eggert* (App. No. 2001-0790, decided May 29, 2003) is summarized and broadly applied to the instant reissue claims.

Examiner's Response:

The situation encountered by the Eggert court is fundamentally different from the issues of claims 8-11 (i.e., referred to herein as the instant reissue claims); too different to broadly apply the conclusions of the Eggert court to the examiner's recapture rejections. However, the similarities that do exist serve to fully support the position taken by the examiner in the previous Office Action. An explanation shall follow.

In re Clement and Ex parte Eggert

First, the examiner relied upon the steps and criteria set forth by *In re Clement* (45 USPQ2d at 1161 (Fed. Cir. 1997)) for determining the subject matter surrendered by the applicant. The Clement court stated, "to determine whether an applicant surrendered particular subject matter, we look to the prosecution history for arguments and changes to the claims made in an effort to overcome a prior art rejection". This statement was discussed in *Hester Industries, Inc. V. Stein, Inc.* (46 USPQ2d 1641 (Fed. Cir. 1998)), where the court observed that surrender of claimed subject matter may occur by arguments made during the prosecution of the original application even where there was no claim change made. In summary, surrendered subject matter comprises omitted subject matter of the reissue claims previously surrendered by applicant, where the omitted subject matter comprises a broadening aspect of the reissue invention, where the prosecution history of the patent is relied upon in determining what was surrendered. **The prosecution history includes the rejections and/or applicant's arguments made therein.**

Second, the Clement court devised a two step test for recapture. The Eggert court added a third step to the Clement test. Specifically, after determining what aspects of the reissue claims are broader than the patent claims, and after determining whether the broader aspects relate to surrendered subject matter, the Eggert court added the step of **determining whether the reissued claims are materially narrowed in other respects to avoid the recapture rule**. The instant reissue claims are not narrower in any respect. Therefore, the instant reissue claims do nothing to avoid the recapture rule, and the third step of Eggert does not pertain.

Third, the conclusions reached by the Eggert court do not directly apply to the facts of the instant application because the claims at issue in Eggert and those of the instant application fall into different categories defined by Clement. In the Eggert decision, at page 43, the court recited the principles of Clement as follows:

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before us therefore fall into category (3)(b) as described by Clement, 131 F.3d at 1470, 45 USPQ2d at 1165:

In both Mentor and Ball, the relevance of the prior art rejection to the aspects narrowed in the reissue claim was an important factor in our analysis. From the results and reasoning of those cases, the following principles flow: (1) if the reissue claim is as broad as or broader than the canceled or amended claim [the surrendered subject matter] in all aspects, the recapture rule bars the claim; (2) if it is narrower [than the surrendered subject matter] in all aspects, the recapture rule does not apply, but other rejections are possible; (3) if the reissue claim is broader [than the surrendered subject matter] in some aspects, but narrower [than the surrendered subject matter] in others, then: (a) if the reissue claim is as broad as or broader in an aspect germane to a prior art rejection, but narrower in another aspect completely unrelated to the rejection, the recapture rule bars the claim; (b) if the reissue claim is narrower in an aspect germane to [a] prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim, but other rejections are possible.

As seen above, the Clement court (as recited by the Eggert court) derived the several categories into which reissues claims fall. The Eggert court found that the claims at issue best fit into category (3)(b)¹, where the reissue claims are narrower in an aspect germane to a prior art rejection, and broader in an aspect unrelated to the rejection. In Eggert, the court concluded that the recapture rule did not bar the claim. However, to reiterate, the instant reissue claims are **not narrower than the patent claim in any aspect**, and the claims are **broader in aspects that are directly related to surrendered subject matter (i.e., either added by amendment to overcome the**

prior art, or argued as being distinguishing features over the prior art). This best fits into category 1 of Clement. Thus, it is the examiner's contention that findings of the Eggert court cannot be broadly applied to the situation of applicant's reissue claims, at least because of the differences in the Clement categories.

However, while the overall findings of the Eggert court do not broadly apply to the instant claims, the basic principles, tests and categories of Clement as applied by the Eggert court do directly apply (and have already been applied by the examiner) to the instant claims.

To reiterate, the instant reissue claims fall into category (1) of Clement. That is, the instant claims are **as broad or broader than the amended claim (the surrendered subject matter) in all aspects, and therefore the recapture rule applies.**

Amendment C of the Patent File

Throughout the response below, the examiner properly relies upon the amendment and the arguments made by the applicant in the patent application 08/495,591 file history (referred to herein as the "patent file") in support of the recapture rejections of the instant reissue claims. The arguments pertaining to distinguishing limitations made by the applicant in the patent file are clear, as they have been directly quoted by the examiner in the previous Office Action and herein. What may not be immediately as clear is the purpose of the amendment (i.e., Amendment C, paper no.

¹ However, the Eggert court distinguished the Eggert issues from Clement as discussed below.

11 of patent application 08/495,591) that resulted in allowability. The applicant in the instant response alleges that Amendment C was made for clarity, and not to overcome the prior art (this will also be addressed below in response to the applicant's individual arguments). For example, in the instant response at page 9, it is stated (emphasis in original), "the limitation of Claim 2 was incorporated into Claim 1 in the Amendment filed on September 2, 1997 in order to provide clarity to the claim and not to overcome the prior art."). However, before addressing the applicant's individual arguments below, and for purposes of clarifying the examiner's position regarding the intent of Amendment C, the patent file history will be summarized. In the patent file:

Paper # 6 (mailed on 3/24/97) was the first Office Action. In the action, claims 1-8 were rejected under 35 U.S.C. 112 and the prior art Keith. The 112 rejections were based on minor informalities, including the use of brackets (i.e., []) around the term "run, level" in claim 1, an antecedent basis issue in claim 5, and the use of the word "method" in claim 5. Incidentally, the term "run, level" has been broadened in the instant reissue claims (i.e., the term does not appear in reissue claim 8 at all), and the examiner has NOT pointed to this broadened subject matter as impermissible recapture.

Paper #9 (received on 7/24/97) was applicant's Amendment B (i.e., Amendment A was a pre-amendment correcting minor problems before examination). In the amendment, the brackets were removed from the claims and the antecedent problem was corrected. Thus, all of the 112 rejections were rectified at this point.

Paper # 10 (entered on 9/2/97) was an interview summary, stating:

"Examiner called & suggested that claim 2 be added to 1 & claim 2 be cancelled & claim 3 be dependent on claim 1, to make the case allowable. Attorney and Applicant agreed. Applicant will fax the amendment. (Please see the faxed amendment)".

Paper # 11 (received on 9/2/97) was amendment C, making the exact changes referred to in the interview summary (i.e., incorporating claim 2 into claim 1, and canceling claim 2).

Paper # 12 (mailed on 9/16/97) was a notice of allowability.

Thus, it appears that the sole purpose of Amendment C was to overcome the prior art rejection. That is, there is no indication in the record that Amendment C was necessary for "clarity", as argued by the applicant in the instant response; or for any other reason. From the patent file record, the only clarity issue in claim 1 was respect to the use of brackets surrounding the term "run, level", and that issue had already been rectified by Amendment B before the time of the interview summary and Amendment C. Further, and regarding the originally bracketed term "[run, level]", those terms do not even appear in the instant reissue claims, they also have NOT been rejected under the recapture rule. Therefore, at the time of the interview summary, it appears that the

ONLY issue yet to be resolved was that of the prior art. Also, from the words of the interview summary, it appears that the applicant agreed that the incorporation of claim 2 into claim 1 would result in allowability.

Other statements made by the applicant in the instant response include, for example (page 9 of the instant response, emphasis in original), “the limitation of Claim 2 was incorporated into Claim 1 in the Amendment filed on September 2, 1997 in order to provide clarity to the claim and not to overcome the prior art.”, and “the Applicants did not add such a feature in order to overcome the prior art rejection” but was rather “incorporated into Claim 1 in order to satisfy the Examiner’s concern over whether Claim 1 indeed recited this ‘a plurality of tables’ feature, and not to distinguish over the prior art.”

In response, there is no indication in the patent file record that the examiner had any concerns over the “plurality of tables” feature. **As stated above, the only issue standing in the way of allowability was the prior art, it is the examiner’s contention (from the evidence of the patent file record) that Amendment C was made by the applicant SOLELY in an effort to overcome the prior art.**

Finally, as noted above, and throughout the applicant’s instant response, the applicant repeatedly states that Amendment C was not to overcome the prior art, but rather for clarity. While the “clarity” issue was addressed immediately above, these statements by the applicant in the instant response raise the possibility of a lack of clarity in the instant reissue claims. **Assuming that the examiner had a concern over the clarity of “a plurality of tables” as argued in the instant response at page 9**

(but there is no evidence of this), and assuming that incorporation of claim 2 into claim 1 rectified the clarity issue, then the instant reissue claims must necessarily lack clarity because they do not recite those same limitation (i.e., the limitations of claim 2 in the patent applicant that clarified claim 1).

However, in summary, the examiner cannot find any evidence in the patent file that claim 1 lacked clarity at the time of Amendment C, and all of the evidence of record points to Amendment C as having been filed to overcome the prior art.

Similarities/Differences Between the Instant Reissue Claims and Eggert

In order to point out the differences and similarities of Eggert and the instant claims, a brief analysis of the Eggert decision will be compared/contrasted with the instant issues.

Looking at the Analysis section of the Eggert decision (i.e., beginning at decision page 39), the court applied the principles of Clement to the reissue claims at issue. The Eggert court began (decision page 39) by comparing the reissue claims with the patent claim to determine what elements were broadened in the reissue claims. This is exactly what the examiner did in the previous Office Action, and those differences are summarized as A-E above.

The Eggert court noted that that a change, in the reissue claims, of one limitation was "not in fact a broadening" aspect because "a friction fit is a specify type of interference fit" (decision page 40). That is, a limitation of the reissue claim was changed to correspond to a subset of the patented limitation. **There are no analogies**

to this in the instant reissue claims, so this analysis of the Eggert court does not apply.

Then, the Eggert court proceeded to determine which of those broadened elements related to surrendered subject matter (decision page 40). In this analysis, the court found that certain claim elements were added by amendment to the ultimately patented claim to overcome the prior art, and thus the applicant "conceded that claim 1 prior to that amendment was not patentable, thereby surrendering the subject matter of that claim" (decision page 40). The Eggert court stated that "The deliberate amendment to claim 1 in an effort to overcome the prior art rejection is, in our view, an admission that the scope of the claim before the amendment is unpatentable and establishes that subject matter as surrendered subject matter" (decision page 41). **This is analogous to the examiner's analysis in the previous Office Action.** That is, the examiner explained that the claim elements added by amendment to the applicant's ultimately patented claim during the application's prosecution, in an effort to overcome the prior art, constitutes surrendered subject matter because the amendment was deliberate, and thus an admission that the scope of the claim before the amendment was unpatentable. **The Eggert court as cited above makes it clear that such an amendment constitutes surrendered subject matter.**

Then, the Eggert court went on to determine in "what aspects the reissue claims are broader than the surrendered subject matter and in what aspects the reissue claims are narrower than the surrendered subject matter" (decision page 41). In this analysis, the court held that limitations omitted from the reissue claims "clearly relate to features

which were not argued by the appellants as distinguishing over the applied prior art" (decision page 41). **In the case of applicant's reissue claims, every omission pointed to by the examiner (e.g., omissions A-E above) was either added by a deliberate amendment, or argued by the applicant as being a distinguishing feature. The previous Office Action (as repeated below) directly quoted the applicant from the prosecution history of the patent.**

Next, the Eggert court determined if the reissue claims were narrower than the surrendered subject matter, and went on to analyze in what aspects the subject matter was "both narrower than the surrendered subject matter in an aspect germane to the prior art rejection ... and broader only in aspects unrelated to the rejection" (decision pages 41-42). **This does not apply to the applicant's reissue claims, as none of the instant claim limitations are narrower than the surrendered subject matter and all of the broadened limitations were germane to overcoming the prior art (i.e., either added by amendment to overcome the prior art, or argued by the applicant as being distinguishing over the prior art).**

The Eggert court concluded by stating (decision page 43), "Thus, in accordance with the principles set forth in Clement, the recapture rule does not bar the reissue claims in this case". The court noted, via a footnote 20, that the Eggert issues were unlike those at issue in Clement, where the reissue claims were "broader and narrower in areas relevant to the prior art rejections". That is, the Eggert claims were "both narrower than the surrendered subject matter in an aspect germane to the prior art rejection ... and broader only in aspects unrelated to the rejection".

However, the instant reissue claims directly fall into category 1 of Clement which is different from both the claims at issue in Clement, and the claims at issue in Eggert. That is, as stated above, category 1 of Clement states, **“If the reissue claim is as broad as or broader than the canceled or amended claim [the surrendered subject matter] in all aspects, the recapture rule bars the claim”**. Unlike Eggert, the instant reissue claims are NOT “broader only in aspects unrelated to the rejection”, and they have NOT been narrowed AT ALL.

NOTE: In the examiner's Clement analysis of instant reissue claims, the subject matter described above and in the rejection below was found to be barred by the recapture rule. However, the reissue claims were also found to broadened with respect to subject matter that was not argued or added by amendment to overcome the prior art. For example, reissue claim 8 does not require the “statistical characteristics of said run, level data” required by the original, issued claim. The examiner's analysis was fair, complete and took into account the entire prosecution history of the patent.

Zigzag Scanning

Summary of Applicant's Remarks (In the response section titled ZigZag Scanning): “Applicant has changed the phrase 'predetermined pattern' back to 'zig-zag scanning' in claim 8. Thus, the basis for rejection is rendered moot” (response page 8).

Examiner's Response: Partially agreed. Yes, the preamble has been amended to read “zig-zag scanning”. However, surrendered subject matter B above, which corresponds to the patent claim 1 limitation of selecting a variable-length coding table in

accordance with the zigzag scanning position, has not been added back to claim 1. This limitation was argued by the applicant during the prosecution of the patent application as distinguishing over the prior art. In the remarks filed with amendment B of serial number 08/495,591 (paper number 9; received on July 24, 1997), applicant argued the following (refer to page 9 of applicant's remarks):

“... these portions of the reference do not teach or suggest selecting a variable-length coding table based upon the zigzag scanning position and the quantization step size ...”

In the present response by the applicant, this broadened subject matter has not been argued or otherwise addressed by the applicant, and thus the rejection still stands.

NOTE: While the preamble of claim 8 has been changed to recite scanning in a “zig-zag pattern”, the current limitation of “selecting one of said plurality of variable-length coding tables according to ... scanning position” (claim 8, lines 5-6) does not refer back to the “zig-zag” scanning of the preamble. Thus, the “scanning position” limitation is broadened to encompass any kind of scanning.

Different Patters

Summary of Applicant's Remarks (In the response section titled Different Patterns for Regular and Escape Regions): “As the record clearly indicates, the characteristics of the VLC tables, having regular and escape regions, were not needed in order to overcome the prior art” (response page 9, emphasis in original).

Examiner's Response: The record does NOT clearly indicate this. To the contrary, the record indicates that the applicant felt that coding tables having regular and escape regions not only provided some of the patentable benefits of the claimed invention, but also served to distinguish over the prior art. In fact, the setting and selecting of variable-length coding tables having different patterns for regular and escape regions **was argued by applicant during the prosecution of 08/495,591 as being essential to patentability and was added by amendment to the original claim to overcome the prior art.** First, in the remarks filed with amendment B of serial number 08/495,591 (paper number 9; received on July 24, 1997), applicant espoused the benefits of having regular and escape regions (refer to page 5 of applicant's remarks):

"The reduction in bits is achieved in two ways. First, because the regular region and the escape regions of each of the variable-length coding tables are different ..."

Then, in the remarks filed with amendment B of serial number 08/495,591 (paper number 9; received on July 24, 1997), applicant argued the following (at page 7):

"None of the sections of the reference cited by the examiner, nor any other sections of the reference, teaches or suggests setting a plurality of variable-length coding tables having different patterns of a regular region and an escape region" (page 7, top paragraph, underlined emphasis added by applicant, bolded emphasis added by the examiner).

Again, in the remarks filed with amendment B of serial number 08/495,591 (paper number 9; received on July 24, 1997), applicant argued the following (at page 10):

“Keith does not disclose any characteristics of a variable-length coding table, including the escape region ...”

Further, in amendment C of serial number 08/495,591 (paper number 11; received on September 2, 1997), the applicant added the limitations of claim 2 into claim 1 which further added the same limitation again to claim 1; thus reinforcing that fact that the “different patterns” limitation was needed. Also, the purpose of Amendment C was fully addressed by the examiner above.

Thus, it would appear from applicant's own actions and words that the applicant did indeed consider variable length coding tables having different patterns for regular and escape regions were needed to overcome the prior art.

Summary of Applicant's Remarks (In the response section titled Different Patterns for Regular and Escape Regions): “As the Examiner indicated in the telephone interview with the applicant, the feature of a plurality of tables already distinguished the present invention over the prior art (when combined with other elements of Claim 1)” (response page 9, emphasis in original).

Examiner's Response: The interview summary (paper no. 10 of application 08/495,591) does not indicate this at all. The interview summary states, in its entirety:

“Examiner called & suggested that claim 2 be added to 1 & claim 2 be cancelled & claim 3 be dependent on claim 1, to make the case allowable. Attorney and Applicant agreed. Applicant will fax the amendment. (Please see the faxed amendment)”.

There is nothing in this interview summary that indicates the feature of a plurality of tables already distinguished the present invention over the prior art.

Summary of Applicant’s Remarks (In the response section titled Different Patterns for Regular and Escape Regions): “Applicant respectfully submits that the feature of “having different patterns ...” was nothing more than an explanation of the tables ...” (response page 9).

Examiner’s Response: This feature was more than just an “explanation” of the tables. While an “explanation” may be fitting for remarks made in a response by the applicant, or in the detailed description, such an explanation when part of a claim constitutes a positively recited limitation. Further, as described above, the applicant used this feature in arguments to distinguish the claims over the prior art.

Summary of Applicant’s Remarks (In the response section titled Different Patterns for Regular and Escape Regions): “During the prosecution of the parent application, the limitation of Claim 2 was incorporated into Claim 1 in the Amendment ... in order to provide clarity to the claim and not to overcome the prior art” (response page 9; emphasis in original).

Examiner's Response: The prosecution history indicates otherwise. The interview summary (paper no. 10 of application 08/495,591) states (emphasis added):

"Examiner called & suggested that claim 2 be added to 1 & claim 2 be cancelled & claim 3 be dependent on claim 1, to make the case allowable. Attorney and Applicant agreed".

Thus, from the interview summary that went unchallenged in the original patent file, it is clear that the Attorney and Applicant agreed that the combining of claim 2 into claim 1 ultimately (in combination with the existing features of claim 1) made the case allowable. It follows that if the amendment is what made the case allowable, then the amended subject matter (as part of the existing claimed combination) is what distinguished over the prior art. Further, the purpose of Amendment C was fully addressed by the examiner above. That is, as stated above, **given that from the patent record, the only issue standing in the way of allowability was the prior art, it is the examiner's contention that (from the evidence of the patent file record) Amendment C was made by the applicant in an effort to overcome the prior art and for NO OTHER REASON.** Thus, the amended subject matter is surrendered.

Summary of Applicant's Remarks (In the response section titled Different Patterns for Regular and Escape Regions): "As the examiner indicated, "a plurality of tables" feature was enough to distinguish ... over the prior art" (response page 9; emphasis in original).

Examiner's Response: It is not clear where, on the record, the examiner stated this? It was not in the interview summary. Even so, from the aforementioned interview summary that went unchallenged in the original patent file, and based on the evidence in the patent file as addressed by the examiner above, it is the examiner's content that the Attorney and Applicant filed Amendment C to distinguish over the prior art, which was the only rejection standing in the way of allowability at that time.

Summary of Applicant's Remarks (In the response section titled Different Patterns for Regular and Escape Regions): "On the basis of ... *In re Eggert*, it is clear from the prosecution history that Applicant did not amend or argue the different patterns for regular and escape regions to overcome the prior art" and "the claim is broader only in aspect unrelated to the rejection in the original patent" (response page 9; emphasis in original).

Examiner's Response: This is not clear from the prosecution history at all, as described above. Further, as described above, the reissue claims of Eggert were different from those at issue here and the conclusions reached by the Eggert court are not broadly applicable to the instant application.

Furthermore, the patented limitation of a selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region was not addressed by the applicant in the instant response. However, this feature was directly incorporated into the patented claim by the applicant, via. Amendment C, in response to the interview summary as described above. Therefore, the omission of this limitation as well constitutes improper recapture.

Currently Processed Block

Summary of Applicant's Arguments (In the response section titled Selecting According to Intra/Inter Mode of the Currently Processed Block): "The limitation of Claim 2, which included 'selecting according to intra/inter mode' language, was incorporated into Claim 1 in the Amendment filed on September 2, 1997 in order to provide clarity to the claim and not to overcome the prior art" (response page 10, emphasis in original).

Examiner's Response: This argument is analogous to the arguments advanced by the applicant and addressed by the examiner above. In summary, the amendment was deliberate, and the applicant's agreed with the examiner that it would result in allowability. Further, as stated above, **given that from the patent record, the only issue standing in the way of allowability was the prior art, it is the examiner's contention that (from the evidence of the patent file record) Amendment C was made by the applicant in an effort to overcome the prior art and for NO OTHER REASON.** In the amendment, the limitation added to the patented claim 1 included:

“wherein said selecting step has the selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region according to said intra/inter mode information of the currently processed block” (emphasis added by the examiner).

The added limitation “said intra/inter mode information of the currently processed block” refers back to “selecting” step of patent claim 1, which recites “selecting one of said plurality of variable-length coding tables according to inter/intra mode information of the currently processed block ...” (emphasis added). Thus, by adding the “selecting range” limitation to claim 1 for purposes of patentability, and because the added limitation refers to the “currently processed block”, the fact that the “selecting” and “selecting range” limitation are with respect to the “currently processed block” are surrendered subject matter.

Prior Art Rejections: The Kato (US 5,559,557 A) Reference:

Summary of Applicant’s Remarks: “Kato does not teach a technology of using a quantization step size” (response page 11, emphasis in original).

Examiner’s Response: Kato selects a VLC table based on several factors, including quantization step size. Referring to figure 17, Kato’s modifier 706 functions to control the storage 707, based on the intra_dc_precision code S26. Code S26 represents quantization step size. That is, “the signal CTL represents, the required precision of 8, 9, 10 or 11 quantized bits” at column 8, line 60, or “quantization step

width" as it is referred to at column 28, line 45, and "S26 corresponds to the CTL signal" at column 11, line 10. If the precision required is to be 8-11 bits, one of tables 9B or 9C are selected. However, if the precision is less than 8-11 bits (e.g., "M bits" at column 28, line 44), then one of tables 21A or 21B are supplied. In this case, "the VLC processing carried out by the VLC unit 126 of FIG. 13 is based on data from the tables shown in FIG. 21A and 21B instead of FIG. 9B and 9C" at column 28, line 50. **Thus, not only does Kato's signal S26 represent quantization step size, but it is used to directly select VLC tables.**

Summary of Applicant's Remarks: "The Examiner alleges [S26] is identical to the quantization step size of the present invention" and "this assertion is overly broad and simply erroneous" (response page 11).

Examiner's Response: It is not the assertion that is overly broad, but rather the claim limitation. That is, Kato discloses the use of a quantization step size as described above. The quantization step size used by Kato does not have to be the exact same "quantization step size of the present invention" (presumably, the disclosed invention) as argued. Rather, all it has to do is anticipate the broadly recited element of "quantization step size". It does that; for at least the reasons described above.

Summary of Applicant's Remarks: "In MPEG technology, the quantization step size is completely different from the "intra_dc_precision" parameter" (response page 11).

Examiner's Response: The claim does not require the use or implementation of "MPEG". Limitations from either applicant's own specification, or from "MPEG technology" per se. will not be read into the claimed limitation of "quantization step size". **The term quantization step has been, and shall continue to be construed by the examiner as meaning the number of bits used to quantize a value.** This is exactly what the signal S26 of Kato designates.

Summary of Applicant's Remarks: "In particular, referring to Figure 15 of the present invention, S18 corresponds to a quantization step size for an AC component. Specifically, a quantization step size is used to quantize AC components of both inter blocks and intra blocks" (response page 1).

Examiner's Response: The examiner referred to figures 13 and 17, where all of the claim limitations are anticipated. Signal S18 has nothing to do with how the Kato reference anticipates claim 8.

Summary of Applicant's Remarks: "However, the 'intra_dc_precision' parameter cited by the Examiner corresponds to a quantization factor for a DC component which corresponds to S26. That is, the 'intra_dc_precision' parameter is used to quantize only DC components of only intra blocks" (response page 12).

Examiner's Response: Where and how does the claimed invention preclude signal S26 from anticipating the "quantization step size" limitation in the context of the broadly recited claim combination in its current form? There are no elements of claim 8 that require the "selecting" based on "quantization step size" of both AC and DC coefficients, let alone that even mention "AC" or "DC".

Summary of Applicant's Remarks: "In general, a quantization step size is used for AC components which occupy most of the DCT coefficients ... " (response page 12).

Examiner's Response: The claims do not mention anything about AC vs. DC coefficients. The claims merely call for the selecting of one of the VLC tables based on quantization step size; NOT quantization step size of AC coefficients or any other specific coefficients. In other words, the claim is broad enough to encompass a selection based on the quantization step size of anything!

Summary of Applicant's Remarks: "The present invention selects one of a plurality of tables in doing VLC of AC components" (response page 12).

Examiner's Response: Where is this claimed?

Summary of Applicant's Remarks: "By contrast, Kato does not select one of a plurality of different tables in doing VLC of DC components ..." (response page 12).

Examiner's Response: Kato does so as described in the rejection below. However, even so, where and how does the claim distinguish anything with respect to AC and DC coefficients? The terms AC and DC are not even mentioned in the claims.

Summary of Applicant's Remarks: In Kato, "... two tables are simultaneously used for VLC of a DC component, but one of the two tables is not selected" (response page 12).

Examiner's Response: Incorrect. Kato, as described below, must select one of tables 9B or 9C (or 21A or 21B) depending on the flags that indicate whether a luminance or chrominance block is being encoded. That is, one of table 9B or 21A is selected by the modifier 706 if flag S702 is set, corresponding to Y data or table 9C or 21B is selected if flags 703 or 704 are set corresponding to Cb or Cr data. This is described at column 22, lines 7-15.

103 Rejections

Summary of Applicant's Remarks: Regarding the 103 rejections, the same alleged deficiencies of the Kato reference already addressed above are relied upon by the applicant.

Reissue Applications

4. Claims 8-11 are rejected under 35 U.S.C. 251 as being an improper recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based. See *Hester Industries, Inc. v. Stein, Inc.*, 142 F.3d 1472, 46 USPQ2d 1641 (Fed. Cir. 1998); *In re Clement*, 131 F.3d 1464, 45 USPQ2d 1161 (Fed. Cir. 1997); *Ball Corp. v. United States*, 729 F.2d 1429, 1436, 221 USPQ 289, 295 (Fed. Cir. 1984). A broadening aspect is present in the reissue which was not present in the application for patent. The record of the application for the patent shows that the broadening aspect (in the reissue) relates to subject matter that applicant previously surrendered during the prosecution of the application. Accordingly, the narrow scope of the claims in the patent was not an error within the meaning of 35 U.S.C. 251, and the broader scope surrendered in the application for the patent cannot be recaptured by the filing of the present reissue application.

Selection According to Zigzag Scanning Position

Claims 8-11 do not recite “selecting” a variable length coding table according to a “zigzag scanning position”. Instead, claim 8 for example recites the selection of a variable length coding table according to “scanning position” (claim 8, line 6), in the absence of a zigzag scanning position. In the remarks filed with amendment B of serial number 08/495,591 (paper number 9; received on July 24, 1997), applicant argued the following (refer to page 9 of applicant’s remarks):

“... these portions of the reference do not teach or suggest selecting a variable-length coding table based upon the zigzag scanning position and the quantization step size ...”

Thus, the following subject matter was surrendered and cannot be recaptured:

The selection of a variable-length coding table in accordance with the zigzag scanning position and quantization step size.

Currently, the claim only requires the selection of a variable-length coding table in accordance with “scanning position” and quantization step size. Claim 8 does not in any way call for selecting according to zigzag scanning position. Further, the amendment to the preamble does not rectify this. While the preamble of claim 8 has been changed to recite scanning in a “zig-zag pattern”, the limitation of “selecting one of said plurality of variable-length coding tables according to ... scanning position” (claim 8, lines 5-6) does not refer back to the “zig-zag” scanning of the preamble. Thus, the “scanning position” limitation is broad enough to encompass any kind of scanning.

Different Patterns for Regular and Escape Regions

The setting and selecting of variable-length coding tables having different patterns for regular and escape regions of the orthogonal transform coefficients was argued by applicant during the prosecution of 08/495,591 as being essential to patentability and was added by amendment to the original claim to overcome the prior art.

Claim 8 does not recite the “setting” of a plurality of variable length coding tables “having different patterns of a regular region and an escape region”. Instead, claim 8 merely recites the “setting a plurality of variable-length coding tables” (line 4) in the absence of any limitations defining different regions. The applicant surrendered this subject matter during the prosecution of 08/495,591. In the remarks filed with amendment B of serial number 08/495,591 (paper number 9; received on July 24, 1997), applicant argued the following:

“... This bit reduction is achieved in two ways. First, because the regular region and escape regions of each of the variable-length coding tables are different, the run, level pairs likely to have a high frequency of occurrence according to the specific quantization step size Qss and scanning position SP, can be assigned designations having a low number of bits. Secondly, the number of bits required to define the escape sequence ESQ can be reduced from the standard 21 bits” (*page 5, bottom paragraph; emphasis added by the examiner*);

and

“None of the sections of the reference cited by the examiner, nor any other sections of the reference, teaches or suggests setting a plurality of variable-length coding tables having different patterns of a regular region and an escape region” (*page 7, top paragraph, underlined emphasis added by applicant, bolded emphasis added by the examiner*).

Thus, the applicant argued that coding tables having different patterns for regular and escape regions resulted in the benefits of the claimed invention, and also served to distinguish over the prior art. Therefore, the following subject matter was surrendered and cannot be recaptured:

setting a plurality of variable length coding tables having different patterns of a regular region and an escape region.

In addition, claim 8 does not recite, "wherein the selecting step has the selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region". Instead, claim 8 merely recites, "selecting one of said plurality of variable-length coding tables according to ..." (line 5) in the absence of the tables having different patterns of regular and escape regions. The applicant surrendered this subject matter during the prosecution of 08/495,591 for the reasons recited immediately above, and due to a claim amendment that resulted in allowability. That is, in amendment C of serial number 08/495,591 (paper number 11; received on September 2, 1997), the applicant filed a claim amendment adding the following subject matter to independent claim 1:

"wherein said selecting step has the selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region ..."

Therefore, the following subject matter was surrendered and cannot be recaptured:

A selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region".

Selecting According to Intra/Inter Mode of the Currently Processed Block

The selecting of a variable-length coding table (i.e., having different patterns for regular and escape regions of the orthogonal transform as discussed above) according to the intra/inter mode information of a currently processed block was argued by applicant during the prosecution of 08/495,591 as being essential to patentability and was added by amendment to the original claim to overcome the prior art.

Claims 8-11 do not recite "selecting" a variable-length coding tables "according to the intra/inter mode information of the currently processed block". Instead, claim 8 for example recites, "selecting one of said plurality of variable-length coding tables according to inter/intra mode information" (line 6) in the absence of "a currently processed block". The applicant surrendered this subject matter during the prosecution of 08/495,591 due to a claim amendment that resulted in allowability. That is, in amendment C of serial number 08/495,591 (paper number 11; received on September 2, 1997), the applicant filed a claim amendment adding the following subject matter to independent claim 1:

"wherein said selecting step has the selecting range of a plurality of variable-length coding tables having different patterns of a regular region and an escape region according to said intra/inter mode information of the currently processed block" (*emphasis added by the examiner*).

Therefore, the following subject matter was surrendered and cannot be recaptured:

Selecting a variable-length coding tables according to inter/intra mode information of a currently processed block.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipated by Kato (US 5,559,557 A; the examiner's explanation of the Kato reference is italicized below for clarity).

Regarding claim 8, Kato discloses an adaptive variable length coding method (e.g., *figures 7, 13 and 17 best exemplify the encoding method of Kato; Figure 7 is an overall block diagram, figure 13 is a more detailed block diagram of the overall system, and figure 17 is a detailed diagram of the variable length coding VLC according to block 64 of figure 7, and block 126 of figure 13*) in which quantized orthogonal transform coefficients (i.e., “quantized DCT coefficients” at column 13, line 3; looking at figure 13, a DCT is performed at block 114, and the coefficients of the DCT are quantized at block 115; these coefficients are represented in figure 17 at numeral 700) are scanned in a zigzag pattern (i.e., “scan ... in a zigzag manner” at column 13, line 4), and are then variable length coded (i.e., “variable length code” at column 6, line 10; looking at figure 13, variable length coding takes place at block 126; figure 17 depicts the details of the

variable length coding) in a coding system for image data (“raw picture” at column 6, line 25), comprising the steps of:

setting a plurality of variable length coding tables (in figure 17, more than four tables are set; that is, block 704 has Huffman tables for DC and AC coefficients and block 707 has at least the four tables depicted in figures 9B, 9C, 21A and 21B; that is, not only does block 706 rely upon tables of figures 9B-9C, but it may also access the tables of figures 21A and 21B when a different quantization precision is required, as described at column 28, lines 41-56; Thus, a plurality of VLC coding tables are set as follows: block 704 has a table, and block 705 has at least four tables corresponding to figures 9B, 9C, 21A and 21B;

NOTE however that there are other ways the Kato reference anticipates this limitation; for example, table modifier 706 modifies the tables of 707 and thus sets a different set of tables; Kato states that “the ranges of the tables can be dynamically adapted to the encoding precision required” at column 4, line 49; in addition, Kato states that the “code tables … are modified in accordance with results of statistical observation of input signals” at column 8, line 25; this is stated again by Kato at column 28, lines 41-55; further);

selecting one of the plurality of variable length coding tables (e.g., either 9B, 9C, 21A or 21B; e.g., table 9B or 21A is selected by the modifier 706 if flag S702 is set, corresponding to Y data or table 9C or 21B is selected if flags 703 or 704 are set corresponding to Cb or Cr data; this is described at column 22, lines 7-15) according to

intra/inter mode information (e.g., *in figure 17, block 709 sets switch 710 to the "B" position for "intra" mode image information and "A" for inter mode image information; when the switch is in the "A" position, the Huffman tables of block 704 are utilized for coding; when the switch is in the "B" position, the coding tables of block 705 are utilized for coding; then, according to the Y or Cb and Cr flags as described above, either table 9B/21A or 9C/21B are selected*), scanning position (e.g., *block 703 [the DC/AC Separator] selects block 704 for AC coefficients and block 705 for DC coefficients; when block 705 is selected corresponding to DC coefficients, then according to the Y or Cb and Cr flags as described above, either table 9B/21A or 9C/21B are selected; given that AC and DC coefficients have different scanning positions [i.e., the dc coefficient is scanned first, followed by the ac coefficients in a zigzag manner], the claim limitation is met*) and quantization step size (i.e., *"modifier 706 functions to control the storage 707, based on the intra_dc_precision code S26; code 26 represents quantization step size; that is, "the signal CTL represents, the required precision of 8, 9, 10 or 11 quantized bits" at column 8, line 60, and "S26 corresponds to the CTL signal" at column 11, line 10; if the precision required is to be 8-11 bits, one of tables 9B or 9C are selected; if the precision is less than that, then one of tables 21A or 21B are supplied; see "the VLC process ... is based on data from the tables shown in FIG. 21A and 21B instead of FIG. 9B and 9C" at column 28, line 50*), where the selecting step has the selecting range of a plurality of variable length coding tables (as stated above, *a plurality of coding tables are available for selection*); and

variable length coding said quantized orthogonal transform coefficients according to said selected variable length coding table (*figure 17, the coded data is present at numeral 732*).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kato (US 5,559,557 A) and Kaneko et al. (US 4,908,862 A).

Regarding claim 10, Kato selects the variable length coding table in accordance with said scanning position and quantization step size as described above, within the range determined in accordance with said intra/inter mode information (figure 17, numeral 709; “the ranges of the tables can be dynamically adapted to the encoding precision required for the portion of the video signal being encoded’ at column 4, line 49; the encoding precision of the “intra” picture data is encoded with more precision than the inter picture data).

Regarding claims 9 and 10, Kato does not disclose the variable length coding tables as having different patterns of a regular and an escape region.

It is noted that “regular” and “escape” regions are described by applicant with respect to figure 4, where a regular region contains low frequency coefficients and an

escape region contains high frequency coefficients. In the absence of any claimed elements further defining the nature of these regions, the examiner shall interpret regular and escape regions broadly in this manner.

Kaneko disclose a variable length image coding system (figure 10), comprising a plurality of variable length coding tables (figure 10, numeral 45) having different patterns of a regular and an escape region (as depicted in figure 12; there are five coding tables having different patterns of regular and escape regions; e.g., the first code set of figure 1 pertains to a regular regions and has the pattern of "1s" depicted in figure 12; the fifth code set of figure 10 pertains to an escape region and has the patter of "5s" depicted in figure 12; Kaneko states, "the distribution of the quantized signals for the low frequency components becomes dense in comparison with the distribution of the quantized signals for the high frequency components" at column 12, line 4, and "this means that the quantized signals for the low and the high frequency components are preferably encoded in accordance with different code sets" at column 12, line 12; thus, given that the patterns are different for the low and high frequency regular and escape regions respectively, the claimed limitations are met; *NOTE that the above limitations are also met by Kaneko by the embodiment of figure 13, where the first code set pertains to the regular regions and the second code set pertains to an escape region*).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the code sets (i.e., tables) of Kato, by providing different patterns for regular and escape regions as taught by Kaneko, in order to provide "high

efficiency of encoding" where "the low and the high frequency components can be encoded into short length codes, respectively" (Kaneko, column 12, lines 8-12).

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kato (US 5,559,557 A) and Kaneko et al. (US 4,908,862 A) as applied to claim 9 above, and further in view of Jung (UK 2 267 410 A).

Regarding claim 11, the Kato and Kaneko combination does not teach the data of the escape region of said variable length coding table selected in said variable length coding step being "coded into data having variable run length and level length".

Jung disclose a variable length image coding system (figure 5), comprising coding the data of an escape region (figure 4) into data having variable run length and level length ("the escape sequence, which has coded data from the escape region, comprises an escape code ESC, run, level and sign data" at page 9, line 11; the run and level data are variable as described on page 8; i.e., see "value ranging from" and "level varies" at page 8, lines 10-11).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to code the data of the Kato and Kaneko combination escape region into data having variable run length and level length as taught by Jung, in order to reduce the number of bits, and thus provide maximum data compression, of the frequency coefficients in the "escape region" where the frequency of occurrence of data is low (i.e., page 8, bottom paragraph – page 9, top paragraph). That is, most if not all of the frequency coefficients in the escape region are zeros. Therefore, using the run, length

codes reduces the amount of data required to represent these redundant coefficients by simply allocating them as a string of the same coefficients, rather than individually encoding the coefficients.

Allowable Subject Matter

10. Claims 1-3 are allowed. Each of these claim recite the variable length coding (VLC) of run, level data by selecting one of a plurality of VLC tables according to intra/inter mode information of a currently processed block, according to quantization step size, and according to zigzag scanning position, where the plurality of tables are set as having different patterns of an regular and escape regions according to statistical characteristics of the run, level data (e.g., as depicted in figures 6). These limitations in combination are neither anticipated nor obvious over the prior art.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Werner whose telephone number is 703-306-3037. The examiner can normally be reached on M-F, 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Brian Werner
Primary Examiner
Art Unit 2621
November 20, 2003



BRIAN WERNER
PRIMARY EXAMINER